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| <b>Application Number</b>     | 10/073,625        |
| <b>Filing Date</b>            | February 11, 2002 |
| <b>First Named Inventor</b>   | LAKOWICZ          |
| <b>Group Art Unit</b>         | 11645             |
| <b>Examiner Name</b>          | Not Assigned      |
| <b>Attorney Docket Number</b> | UMARY1            |

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| Sheet | 1 | of | 1 |
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Arum Kr. Chakrabarti

Date  
Considered

1/29/06

<sup>1</sup>Unique citation designation number. <sup>2</sup>See attached Kinds of U.S. Patent Documents. <sup>3</sup>Enter Office that issued the document, by the twoletter code (WIPO Standard ST.3). <sup>4</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup>Applicant is to place a check mark here if English language Translation is attached.

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| <b>Substitute for form 1449B/PTO</b> |   | <b>Application Number</b>            |   |
| <b>INFORMATION DISCLOSURE</b>        |   | <b>Filing Date</b>                   |   |
| <b>STATEMENT BY APPLICANT</b>        |   | <b>First Named Inventor</b> Lakowicz |   |
| (use as many sheets as necessary)    |   | <b>Group Art Unit</b>                |   |
|                                      |   | <b>Examiner Name</b>                 |   |
| <b>Sheet</b>                         | 1 | <b>of</b>                            | 3 |
|                                      |   | <b>Attorney Docket Number</b> UMARY1 |   |

10/073625  
 02/11/02

| OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS |                       |  |                |
|---|-----------------------|--|----------------|
| Examiner Initials <sup>1</sup>                    | Code No. <sup>1</sup> | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, paper(s), volume-issue number(s), publisher, city and/or county where published.                              | T <sup>2</sup> |
| Ac  | AA                    | G.W. FORD AND W.H. WEBER, Electromagnetic Interactions of Molecules With Metal Surfaces, Physics Reports (Review Section of Physics Letters), April 1984, 113, No. 4 195-287, North Holland, Amsterdam   |                |
|   | AB                    | JINGYUE JU, ALEXANDER N. GLAZER, AND RICHARD MATHIES, Energy Transfer Primers: A New Fluorescence Labeling Paradigm for DNA Sequencing and Analysis, Nature Medicine, February 1996, Volume 2, Number 2  |                |
|   | AC                    | LARRY B. MORRISON AND LUCY M. STOLS, Sensitive Fluorescence-Based Thermodynamic and Kinetic Measurements of DNA Hybridization in Solution, Biochemistry, 1993, 32, 3095-3104, American Chemical Society  |                |
|   | AD                    | R.R. CHANCE, A. PROCK AND R. SILBEY, Molecular Fluorescence and Energy Transfer Near Interfaces, Adv. Chem. Phys., 1978, 37, 1-65  |                |
|   | AE                    | G.W. FORD AND W.H. WEBER, Electromagnetic Interactions of Molecules With Metal Surfaces, Physics Reports (Review Section of Physics Letters), April 1984, 113, No. 4 195-287, North-Holland, Physics Publishing-Amsterdam  |                |
|   | AF                    | THOMAS SCHALKHAMMER, FRANZ R. AUSSENEGG, ALFRED LEITNER, HARALD BRUNNER, GERHARD HAWA, CHRISTINA LOBMAIER, AND FRITZ PITTNER, Detection of Fluorophore-Labelled Antibodies By Surface-Enhanced Fluorescence On Metal Nanoislands, SPIE, 1997, Vol. 2976, 129-136                             |                |
|   | AG                    | JENS-PETER KNEMEYER, NICOLE MARME AND MARKUS SAUER, Probes for Detection of Specific DNA Sequences at the Single-Molecule Level, Analytical Chemistry, August 15, 2000, Vol. 72, 3717-3724, No. 16   |                |
|   | AH                    | ALAN VAN ORDEN, NICHOLAS P. MACHARA, PETER M. GOODWIN, AND RICHARD A. KELLER, Single-Molecule Identification in Flowing Sample Streams by Fluorescence Burst Size and Intraburst Fluorescence Decay Rate, April 1, 1998, Vol. 70, 1444-1451, No. 7, American Chemical Society                |                |
|   | AI                    | S. TAMIL SELVAN, TOMOKATSU HAYAKAWA, AND MASAYUKI NOGAMI, Remarkable Influence of Silver Islands on the Enhancement of Fluorescence from Eu <sup>3+</sup> Ion-Doped Silica Gels, J. Phys. Chem. B, 1999, 103, 7064-7067  |                |
|   | AJ                    | W.L. BARNES, Fluorescence Near Interfaces: The Role of Photonic Mode Density, Journal of Modern Optics, 1998, Vol. 45, No. 4, 661-699, Taylor & Francis Ltd.   |                |
| Ac  | AK                    | REGINA PLESSOW, ANDREAS BROCKHINKE, WOLFGANG EIMER, AND KATHARINA KOHSE-HÖINGHAUS, Intrinsic Time- and Wavelength-Resolved Fluorescence of Oligonucleotides: A Systematic Investigation Using a Novel Picosecond Laser Approach, J. Phys. Chem. B 2000, 104, 3695, American Chemical Society |                |

|                           |                             |                        |         |
|---------------------------|-----------------------------|------------------------|---------|
| <b>Examiner Signature</b> | <i>Arjun K. Chakrabarti</i> | <b>Date Considered</b> | 1/29/03 |
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**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Sheet 2 of 3

Application Number

Filing Date

First Named Inventor

Lakowicz

Group Art Unit

Examiner Name

Attorney Docket Number UMARY1

**OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS**

| Examiner Initials <sup>1</sup> | Code No. <sup>1</sup> | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, paper(s), volume-issue number(s), publisher, city and/or county where published.                 | T <sup>2</sup> |
|--------------------------------|-----------------------|---|----------------|
| AC                             | BA                    | J. KÜMMERLEN, A. LEITNER, H. BRUNNER, F. R. AUSSENEGB, AND A. WOKAUN, Enhanced Dye Fluorescence Over Silver Island Films: Analysis of the Distance Dependence, Molecular Physics, 1993, Vol. 80, No. 5, 1031-1046, Taylor & Francis Ltd.  |                |
|                                | BB                    | A. WOKAUN, H.-P. LUTZ, A.P. KING, U.P. WILD, AND R.R. ERNST, Energy Transfer in Surface Enhanced Luminescence, J. Chem. Phys., 1 July 1983, 79(1), 509-514, American Institute of Physics   |                |
|                                | BC                    | X. M. HUA, J. I. GERSTEN, AND A. NITZAN, Theory of Energy Transfer Between Molecules Near Solid State Particles, J. Chem. Phys., 1 October 1985, 83(7), 3650-3658, American Institute of Physics  |                |
|                                | BD                    | J. P. BALLINI, P. VIGNY, AND M. DANIELS, Synchrotron Excitation of DNA Fluorescence Decay Time Evidence for Excimer Emission at Room Temperature, Biophysical Chemistry, 1983, 18, 61-65, Elsevier Science Publishers B.V.  |                |
|                                | BE                    | S. GEORGHIOU, THOMAS M. NORLUND, AND A. M. SAIM, Picosecond Fluorescence Decay Time Measurements of Nucleic Acids at Room Temperature in Aqueous Solution, Photochemistry and Photobiology, 1985, Vol. 41, No. 2, 209-212, Pergamon Press Ltd., Great Britain                   |                |
|                                | BF                    | S. GEORGHIOU, THOMAS D. BRADRIK, ALEXANDER PHILIPPETIS, AND JOSEPH M. BEECHEM, Large-Amplitude Picosecond Anisotropy Decay of the Intrinsic Fluorescence of Double-Stranded DNA, Biophysical Journal, April 1996, Vol. 70, 1909-1922, Biophysical Society                       |                |
|                                | BG                    | JOEL GERSTEN AND ABRAHAM NITZAN, Spectroscopic Properties of Molecules Interacting with Small Dielectric Particles, J. Chem. Phys., 1 August 1981, 75(3), 1139-1152, American Institute of Physics  |                |
|                                | BH                    | JOEL I. GERSTEN AND ABRAHAM NITZAN, Accelerated Energy Transfer Between Molecules Near a Solid Particle, Chemical Physics Letters, 27 January 1984, Vol. 104, Number 1, 31-37, Elsevier Science Publishers B.V.   |                |
|                                | BI                    | JOEL I. GERSTEN AND ABRAHAM NITZAN, Photophysics and Photochemistry Near Surfaces and Small Particles, Surface Science, 1985, 158, 165-189, North Holland, Amsterdam  |                |
| ✓                              | BJ                    | R.R. SINGER, A. LEITNER, AND F. R. AUSSENEGB, Structure Analysis and Models for Optical Constants of Discontinuous Metallic Silver Films, J. Opt. Soc. Am. B., February 1995, Vol. 12, No. 2, Optical Society of America  |                |
| AC                             | BK                    | CLAUDIA TURRO, STEPHAN H. BOSSMAN, YONCHU JENKINS, JACQUELINE K. BARTON, AND NICHOLAS J. TURRO, Proton Transfer Quenching of the MLCT Excited State of Ru(phen)2dppz2+ in Homogeneous Solution Bound to DNA, J. Am. Chem. Soc., 1995, 117, 9026-9032, American Chemical Society |                |

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*Arum Kr. Chakrabarti*

Date

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Sheet 3 of 3

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First Named Inventor Lakowicz

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|--------------------------------|-----------------------|---|----------------|
| Ae                             | CA                    | MILTON KERKER, The Optics of Colloidal Silver: Something Old and Something New, Journal of Colloid and Interface Science, June 1985, Vol. 105, No. 2, Academic Press  |                |
|                                | CD                    | JOSEPH R. LAKOWICZ, BEN SHEN, ZYGMUNT GRZYCZYNSKI, SABATO D'AURIA, AND IGNACY GRZYCZYNSKI, Intrinsic Fluorescence from DNA Can Be Enhanced by Metallic Particles, Biochemical and Biophysical Research Communications, 2001, 286, Academic Press  |                |
|                                | CE                    | A. M. GLASS, P. F. LIAO, J. G. BERGMAN AND D. H. OLSON, Interaction of Metal Particles with Adsorbed Dye Molecules: Absorption and Luminescence, Optics Letters, September 1980, Vol. 5, No. 9, 368-370, Optical Society of America   |                |
|                                | CF                    | D. GRAHAM, B. J. MALLINDER, AND W. E. SMITH, Detection and Identification of Labeled DNA by Surface Enhanced Resonance Raman Scattering, Biopolymers (Biospectroscopy), 2000, Vol 57, 85-31, John Wiley & Sons, Inc.  |                |
|                                | CG                    | A. LEITNER, M. E. LIPPITSCH, S. DRAXLER, M. RIEGLER, AND F. R. AUSENNEGG, Fluorescence Properties of Dyes Adsorbed to Silver Islands, Investigated by Picosecond Techniques, Applied Physics B, 1985, 36, 105-109, Springer-Verlag  |                |
|                                | CH                    | L. RIVAS, S. SANCHEZ-CORTES, J. V. GARCIA-RAMOS, AND G. MORCILLO, Growth of Silver Colloidal Particles Obtained by Citrate Reduction to Increase the Raman Enhancement Factor, Langmuir, 2001, 17, 574-577, American Chemical Society   |                |
|                                | CI                    | F. R. AUSENNEGG, A. LEITNER, M. E. LIPPITSCH, H. REINISCH, M. RIEGLER, Novel Aspects of Fluorescence Lifetime for Molecules Positioned Close to Metal Surfaces, Surface Science, 1987, 189/190, 935-945, North-Holland, Amsterdam   |                |
|                                | CJ                    | ROBERT E. BENNER, RALF DORNHAUS, AND RICHARD K. CHANG, Angular Emission Profiles of Dye Molecules Excited by Surface Plasmon Waves at a Metal Surface, Optics Communications, 1979, Vol. 30, No. 2,   |                |
|                                | CK                    | KONSTANTIN SOKOLOV, GEORGE CHUMANOV, AND THERESE M. COTTON, Enhancement of Molecular Fluorescence Near the Surface of Colloidal Metal Films, Analytical Chemistry, September 15, 1998, Vol. 70, No. 18, 3898-3905, American Chemical Society  |                |
| Ac                             | CL                    | ALAN VAN ORDEN, NICHOLAS P. MACHARA, PETER M. GOODWIN, AND RICHARD A. KELLER, Single-Molecule Identification in Flowing Sample Streams by Fluorescence Burst Size and Intraburst Fluorescence Decay Rate, Analytical Chemistry, April 1, 1998, Vol. 70, No. 7, 1444-1451, American Chemical Society |                |

Examiner Signature

*Houn Kro. Chakrabarti*

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